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(54) VETERINARY COMPOSITION CONTAINING A PROTON PUMP INHIBITOR

TIERARZNEIMITTEL, DAS EINEN PROTONENPUMPENINHIBITOR ENTHÄLT

COMPOSITION VETERINAIRE CONTENANT UN INHIBITEUR DE POMPE A PROTONS

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(56) References cited:
EP-A- 0 496 437
EP-A- 0 519 365
WO-A-88/06893

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Description

Technical Field

[0001] The invention relates to an oral pharmaceutical composition comprising a proton pump inhibitor (PPI) and is designed for the treatment of gastric acid related diseases in animals.

Background of the Invention

[0002] Proton pump inhibitors are potent inhibitors of gastric acid secretion and are used for the treatment of gastric acid related diseases in humans, such as for instance gastric and duodenal ulcers. These substances are susceptible to degradation/transformation in acid reacting and neutral media. Pharmaceutical formulations for oral administration to humans are preferably enteric-coated. These formulations are sensitive to moisture and must be stored in well-closed, tight containers during long-term storage.

[0003] Peptic ulcer diseases are common also in some animals, especially in horses and camels. Other animals of interest for treatment of peptic ulcer diseases are for example dolphins, sea-lions, llamas, dogs, cats and pigs. By gastro-endoscopic evaluation of horses, ulcers have been found in the squamous mucosa, the non glandular fundus, the glandular stomach and the duodenum. The aetiology of gastro-duodenal ulcers in the equine species is mainly unknown but stress appears to play an important role in some cases.

[0004] Anti-ulcer compounds such as for instance histamine-2-receptor antagonists have reportedly been administered several times a day to horses by oral or naso-gastric tubes. This procedure can be traumatic and may require light sedation of the horse. Trained persons are required for the administration.

[0005] Omeprazole and other proton pump inhibitors are potent inhibitors of gastric acid secretion in animals. They block the production of gastric acid by inhibition of H^+K^+-ATPase, the enzyme responsible for the production of hydrogen ions in the parietal cells. The proton pump inhibitors cause profound acid suppression and unlike most other anti-ulcer compounds such as for instance the H_2-blockers, omeprazole can be given once daily. According to the present invention enteric-coated beads containing omeprazole in a gel formulation can easily be applied onto the dorsal part of the tongue of the horse during field conditions and is well accepted by the horses.

[0006] Such a moist gel comprising enteric-coated beads of proton pump inhibitors is not stable during long-term storage at room temperature and must be prepared ex tempore. To-day there exist no such formulation on the market.

[0007] Omeprazole, 5-methoxy-2(((4-methoxy-3,5-dimethyl-2-pyridinyl)methyl)sulfinyl)-1H-benzimidazole, is disclosed in European patent no 5129 as a potent inhibitor of gastric acid secretion.

[0008] Lansoprazole, 2-[[[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridyl]methyl]sulfinyl]-1H-benzimidazole, is disclosed in European patent no 174 726 as a potent inhibitor of gastric acid secretion.

[0009] Pantoprazole is disclosed in European patent no 166 287 as a potent inhibitor of gastric acid secretion.

[0010] Leminoprazole is disclosed in UK patent no 2 163 747.

[0011] An oral pharmaceutical formulation comprising omeprazole is disclosed in European patent application 496437. The formulation contains a core material comprising omeprazole together with an alkaline reacting compound, or an alkaline salt of omeprazole optionally together with an alkaline reacting compound, and on said core material one or more inert reacting subcoating layers and an outer layer which is an enteric coating. The formulation is claimed to be stable against discoloration.

[0012] European patent application 519365 describes an oral pharmaceutical formulation comprising pantoprazole in the form of enteric coated pellets or tablets.

[0013] Neither EP 496437 nor EP 519365 suggests enteric coated pellets incorporated into a gel.

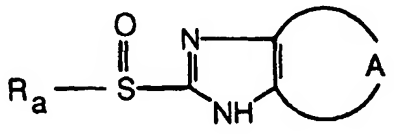
[0014] WO8806893 describes an oral composition which is adapted to be dispersed in an aqueous carrier prior to administration. Particles comprising the active drug substance will obtain a smooth surface, thereby masking uneven surfaces by providing a viscous medium around the particles when dispersed in the aqueous carrier and prevent adhesion of the particles to the wall of a container.

Detailed description of the invention

[0015] The object of the present invention is to provide oral pharmaceutical compositions for easy administration to horses and other animals. The proton pump inhibitor is in the form of dry particles, such as beads or tablets, which are coated with one or more coatings one of which is an enteric-coating. The beads or tablets can be prepared by compaction, crystallisation, applying a solution or suspension of the proton pump inhibitor onto inert cores, extrusion and spheronisation or similar processes. The enteric-coated beads or tablets are mixed with dry gelling agent(s), such as for instance xanthan gum, guar gum, locust bean gum, tragacanth, modified cellulose derivatives or similar gel forming compounds. When water is added to this mixture a paste-like gel is formed. The gel is for example applied dorsally at

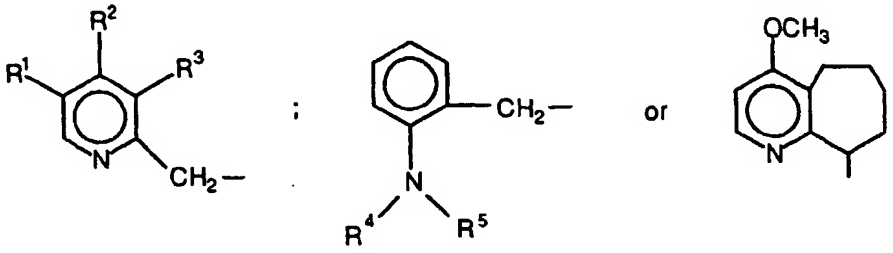
the tongue of the animal such as a horse with a suitable applicator.

[0016] Proton pump inhibitors used in the compositions of the invention are compounds of the general formula I

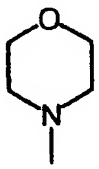


I

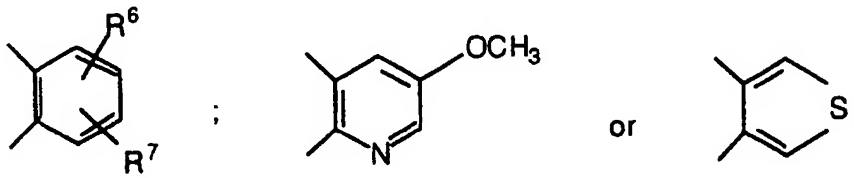
wherein R_a is



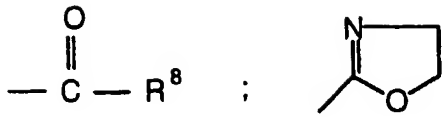
R^1 and R^3 are independently selected from hydrogen, lower alkyl, lower alkoxy and halogen, R^2 is selected from hydrogen, lower alkyl, lower alkoxy, lower alkoxy-lower alkoxy, lower fluoralkoxy and



R^4 and R^5 are independently selected from lower alkyl,
A is



R^6 and R^7 are independently selected from hydrogen, lower alkyl, lower alkoxy, lower fluoroalkoxy, lower fluoroalkyl, halogen,

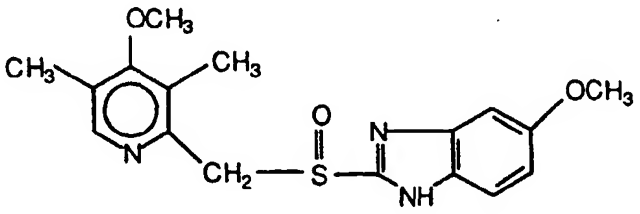


wherein R^8 is lower alkyl or lower alkoxy.

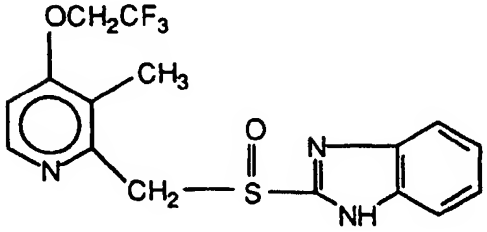
[0017] Lower alkyl in the present invention means an alkyl group having 1-5 carbon atoms.

[0018] Lower alkoxy in the present invention means an alkoxy group having 1-5 carbon atoms.

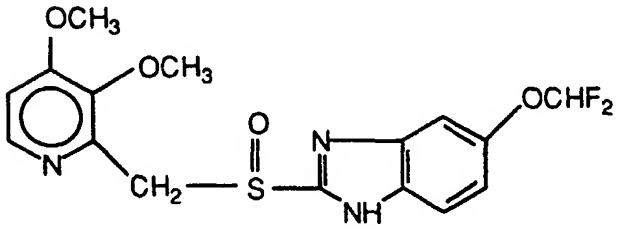
[0019] Examples of proton pump inhibitors according to formula I are



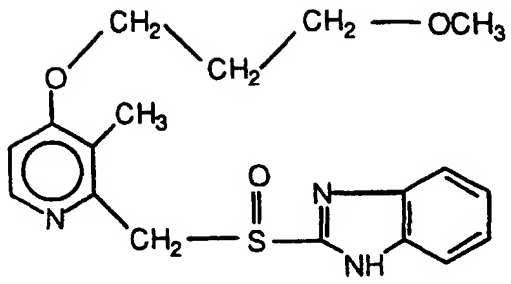
Omeprazole



Lanzoprazole



Pantoprazole



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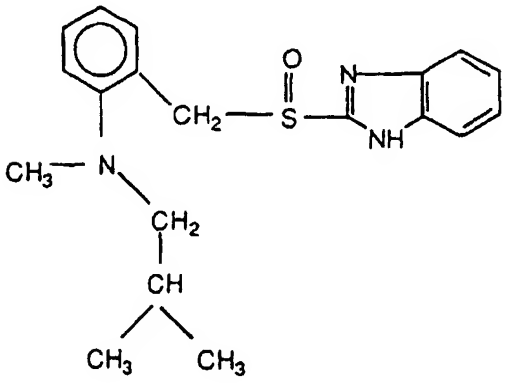
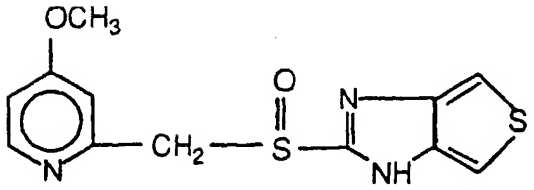


Leminoprazole



S — 4216

[0020] The proton pump inhibitors used in the compositions of the invention may be used in neutral form or in the form of a basic salt, such as for instance the Mg^{2+}, Ca^{2+}, Na^{+}, or K^{+} salts, preferably the Mg^{2+} or Na^{+} salts. Further where applicable, a compound listed above may be used in racemic form or in the form of a substantially pure enantiomer.

[0021] In one embodiment of the invention the enteric-coated particles are mixed with suitable substances, such as for instance suitable inorganic or organic water soluble salts of potassium, calcium, magnesium or aluminium. When a water solution of a suitable polymeric compound or compounds, such as for instance kappa-carrageenan, pectin, anionic polymers known to give gels with positively charged metal ions, or similar compounds, is added to the mixture a paste-like gel is formed through the interaction of the ions with the polymers.

[0022] In another embodiment of the invention the enteric-coated particles are mixed with suitable constituents. When a low-viscous solution of a temperature-sensitive polymer, such as for instance ethylhydroxyethylcellulose (EHEC) or polyethylenepolypropylene glycols or similar substances, is added and the system is warmed to temperatures of 33-35°C or higher a viscous paste-like gel is formed.

[0023] In still another embodiment of the invention the enteric-coated particles are mixed with suitable substances in the form of gelforming agents, such as dry gelling agent. As gelforming agents can be used for example acacia,

agar, alginic acid, sodium carboxymethyl cellulose, hydroxypropyl cellulose, hydroxypropyl methylcellulose or other similar cellulose derivatives, fucoidan, xanthan gum, furcellaran, laminaran or similar gelforming agents.

[0024] In a preferred embodiment of the invention the proton pump inhibitor is omeprazole.

[0025] The amount of the different components of the composition can vary and will depend on various factors such as for example the individual requirement of the animal treated.

[0026] The amount of gelforming agent can vary but is within the range 0.02-20% by weight calculated on the amount of wet gel, preferably in the range of 0.2-20% and especially 0.5-5% by weight.

[0027] The amount of active substance, i.e. the enteric-coated particles, depends on the individual dosages for the animal. For example the amount of enteric-coated particles is usually in the range of 0.1-20 grams, preferably 0.2-10 grams per dosage for horses. The total volume of the final gel given to horses is in the range of 5-50 ml.

[0028] Other suitable substances which may be incorporated in the composition are flavouring substances known in the pharmaceutical field.

[0029] The suitable substances may be added to the enteric-coated proton pump inhibitor particles by mixing the different substances with the enteric-coated particles to a mixture or an ordered mixture. An ordered mixture may be produced for example by particle adhesion or coating processes.

[0030] The mixtures of enteric-coated proton pump inhibitor particles and the suitable constituents are dried before or after mixing to a moisture level where the proton pump inhibitor has a good long-term stability. The mixture is preferably dispensed into a tight applicator preferably in the form of a syringe.

[0031] The mixture of the enteric-coated proton pump inhibitor beads or tablets and other constituents can also comprise a suitable pH-buffering substance which will improve the functional stability of the formulation during its transport through the oesophagus and stomach before it reaches the small intestine where the proton pump inhibitor is dissolved and absorbed. Suitable buffering substances are citric acid, tartaric acid, succinic acid, malic acid, lactic acid, benzoic acid, sorbic acid and ascorbic acid and other substances. Such substances will decrease the pH-value of the gel produced to a value below 5.5, thus protecting the enteric coating of the beads or tablets.

[0032] Further the mixture of the enteric coated proton pump inhibitor particles and suitable constituents may also comprise inert particles, such as inert beads to facilitate the mixing of the different constituents with the enteric-coated particles. Such inert beads are for example beads of coated suger or any other kind of beads not harmful to the animal.

[0033] Enteric coated beads or tablets can be prepared by conventional methods. Enteric-coated pellets of omeprazole can for instance be prepared as described in the US Patent No. 4,786,505 (=EP 247983). Such enteric coated pellets or beads of omeprazole are preferably coated with at least two coatings one of which is an isolation coating/subcoat and the other is an enteric coating.

[0034] The preparation of a stable pharmaceutical composition according to the invention is performed by incorporating a proton pump inhibitor in the form of beads or tablets, which are coated with one ore more coatings one of which is an enteric-coating, into a paste-like gel.

[0035] More particular, the preparation of a formulation in the form of a paste-like gel is performed by either I) mixing the coated particles of the proton pump inhibitor with a dry gelling agent and optionally a pH-buffering system protecting the coated particles whereafter water is added ex tempore, just prior to administration to the animal, or II) mixing the coated particles with a potassium or calcium ion containing salt and optionally a pH-buffering system and thereafter ex tempore, just prior to administration to the animal, with a low-viscous water solution of a gelling agent such as a polymer compound or compounds or by III) mixing the coated particles ex tempore, just prior to administration to the animal, with a low-viscous solution of a gelling agent in the form of temperature-sensitive polymer and optionally with a pH-buffering system and then subjecting the mixture to gentle heating.

Examples

[0036] The omeprazole enteric-coated pellets in the examples below are prepared according to example 2 of US-A 4,786,505 (=EP 247983).

Example 1

[0037]

Omeprazole enteric-coated pellets (corresponding to about 600 mg of omeprazole)	7 g
Xanthan gum are mixed in a syringe.	0.3 g

[0038] When 10 ml of water are added a viscous gel is formed.

Example 2

[0039]

Omeprazole enteric-coated pellets	7 g
Xanthan gum	0.3 g
Citric acid are mixed in a syringe.	60 mg

[0040] When 10 ml of water are added a viscous gel is formed.

Example 3

[0041]

Omeprazole enteric-coated pellets	7 g
Potassium chloride are mixed in a syringe.	30 mg

[0042] When 10 ml of a 1% solution of kappa-carrageenan are added a viscous gel is formed.

Example 4

[0043]

Omeprazole enteric-coated pellets are dispensed into a syringe.	7 g

[0044] When 10 ml of a solution of EHEC (ethylhydroxyethylcellulose) 1.25% and sodium lauryl sulphate 0.1% are added and warmed to 35°C a viscous gel is formed.

Example 5

[0045]

Lansoprazole enteric-coated pellets (prepared according to examples 1 and 2 of EP 277 741, hereby incorporated by reference) (corresponding to lansoprazole ~900 mg)	10 g
Xanthan gum	0.45 g
Citric acid	80 mg

[0046] When 15 ml of water are added a viscous gel is formed.

Example 6

[0047]

Pantoprazole enteric-coated pellets (prepared according to example 2 of EP 519 365, hereby incorporated by reference) (corresponding to pantoprazole ~1200 mg)	7 g
Xanthan gum	0.3 g
Citric acid	50 mg

[0048] When 10 ml of water are added a viscous gel is formed.

[0049] The best mode of carrying out the invention known at present is to use the composition described in Example 2.

Claims

1. A pharmaceutical composition for oral administration to animals characterized in that it comprises a proton pump

inhibitor in the form of beads or tablets, which are coated with one or more coatings one of which is an enteric-coating, and that the proton pump inhibitor in the form of beads or tablets is incorporated into a paste-like gel.

2. A pharmaceutical composition according to claim 1, characterized in that the beads or tablets are coated with at least two coatings one of which is a subcoat and the other is an enteric coating.

3. A pharmaceutical composition according to any of claims 1-2, characterized in that the pharmaceutical composition is intended for oral administration to horses.

4. A pharmaceutical composition according to any of claims 1-2, characterized in that the composition comprises components which are dry enteric-coated beads or tablets of a proton pump inhibitor, optionally mixed with dry constituents, which components on addition of water or a water solution gives a paste-like gel.

5. A pharmaceutical composition according to any of claims 1-2 characterized in that it comprises components which are dry enteric-coated beads or tablets of a proton pump inhibitor, dry gelling agent(s) and optionally pH-buffering and/or flavouring substances which components by the addition of water gives a paste-like gel.

6. A pharmaceutical composition according to any of claims 1-2 characterized in that the dry enteric-coated beads or tablets of a proton pump inhibitor, dry gelling agent(s) and optionally pH-buffering and/or flavouring substances are mixed to a dry mixture before the addition of water or a water solution.

7. A pharmaceutical composition according to claim 6 characterized in that the mixture is an ordered mixture.

8. A pharmaceutical composition according to any of claims 1-2 characterized in that it comprises a first group of components which is dry enteric-coated beads or tablets of a proton pump inhibitor, a water soluble, organic or inorganic salt of potassium, calcium, magnesium or aluminium and optionally pH-buffering and/or flavouring substances, and a second group of components which is a water solution of a gelling agent, which groups of components when mixed give a paste-like gel.

9. A pharmaceutical composition according to any of claims 1-2 characterized in that it comprises a first group of components which is dry enteric-coated beads or tablets of a proton pump inhibitor, optionally mixed with dry pH-buffering and/or flavouring substances, and a second group of components which is a water solution of a temperature sensitive gelling agent, which groups of components when mixed and subjected to gentle heating give a paste-like gel.

10. A pharmaceutical composition according to claim 1 characterized in that the proton pump inhibitor is omeprazole.

11. A pharmaceutical composition according to claim 1 characterized in that the proton pump inhibitor is lansoprazole.

12. A pharmaceutical composition according to claim 1 characterized in that the proton pump inhibitor is pantoprazole.

13. A pharmaceutical composition according to claim 1 characterized in that the proton pump inhibitor is leminoprazole.

14. A stable pharmaceutical composition for oral administration to animals in the form of a kit comprising dry enteric coated beads of tablets of a proton pump inhibitor and dry consituents, which components on addition of water or a water solution give a paste-like gel.

15. A stable pharmaceutical composition for oral administration to animals in the form of a kit comprising a first group of components which is dry enteric-coated beads or tablets of a proton pump inhibitor, a water soluble, organic or inorganic salt of potassium, calcium, magnesium or aluminium and optionally pH-buffering and/or flavouring substances, and a second group of components which is dry gelling agent(s), which groups of components when mixed in the presence of water give a paste-like gel.

16. A stable pharmaceutical composition for oral administration to animals in the form of a kit comprising a first group of components which is dry enteric-coated beads or tablets of a proton pump inhibitor, optionally mixed with dry pH-buffering and/or flavouring substances, and a second group of components which are temperature sensitive gelling agent(s), which groups of components when mixed in the presence of water and subjected to gentle heating give a paste-like gel.

17. A pharmaceutical composition according to any of the claims 1, 14, 15 or 16 characterized in that the composition in its entirety or parts thereof is dispensed into an applicator in the form of a syringe.

18. A process for the preparation of a pharmaceutical composition according to claim 1, characterized by incorporating a proton pump inhibitor in the form of beads which are coated with one or more coatings one of which is an enteric-coating into a paste-like gel.

19. Use of a composition according to any of claims 1, 14, 15 or 16 in the preparation of an active dosage form for the treatment of gastric acid related diseases in animals.

Patentansprüche

1. Pharmazeutische Zusammensetzung zur oralen Verabreichung an Tiere, enthaltend einen Protonenpumpenhemmer in Form von mit einem oder mehreren Überzügen - von denen einer magensaftresistent ist - beschichteten Perlen oder Tabletten, dadurch gekennzeichnet, daß der Protonenpumpenhemmer in Form von Perlen oder Tabletten in ein pastenartiges Gel eingearbeitet ist.

2. Pharmazeutische Zusammensetzung nach Anspruch 1, dadurch gekennzeichnet, daß die Perlen oder Tabletten mit wenigstens zwei Überzügen beschichtet sind, von denen der eine eine Unterschicht und der andere ein magensaftresistenter Überzug ist.

3. Pharmazeutische Zusammensetzung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die pharmazeutische Zusammensetzung zur oralen Verabreichung an Pferde gedacht ist.

4. Pharmazeutische Zusammensetzung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Zusammensetzung Komponenten enthält, bei denen es sich um trockene, magensaftresistent beschichtete Perlen oder Tabletten eines Protonenpumpenhemmers handelt, gegebenenfalls gemischt mit trockenen Inhaltsstoffen, wobei die Komponenten bei Zugabe von Wasser oder einer wäßrigen Lösung ein pastenartiges Gel bilden.

5. Pharmazeutische Zusammensetzung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß sie Komponenten enthält, bei denen es sich um trockene, magensaftresistent beschichtete Perlen oder Tabletten eines Protonenpumpenhemmers, trockene(s) Geliermittel und gegebenenfalls Puffer- und/oder Geschmacksstoffe handelt und die bei Zugabe von Wasser ein pastenartiges Gel bilden.

6. Pharmazeutische Zusammensetzung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die trockenen, magensaftresistent beschichteten Perlen oder Tabletten eines Protonenpumpenhemmers, das/die trockene(n) Geliermittel und gegebenenfalls Puffer- und/oder Geschmacksstoffe vor der Zugabe von Wasser oder einer wäßrigen Lösung zu einer trockenen Mischung vermischt werden.

7. Pharmazeutische Zusammensetzung nach Anspruch 6, dadurch gekennzeichnet, daß es sich bei der Mischung um eine geordnete Mischung handelt.

8. Pharmazeutische Zusammensetzung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß sie eine erste Gruppe von Komponenten, bei denen es sich um trockene, magensaftresistent beschichtete Perlen oder Tabletten eines Protonenpumpenhemmers, ein wasserlösliches organisches oder anorganisches Kalium-, Calcium-, Magnesium- oder Aluminiumsalz und gegebenenfalls Puffer- und/oder Geschmacksstoffe handelt, und eine zweite Gruppe von Komponenten, bei der es sich um eine wäßrige Lösung eines Geliermittels handelt, enthält, wobei die Komponentengruppen beim Mischen ein pastenartiges Gel ergeben.

9. Pharmazeutische Zusammensetzung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß sie eine erste Gruppe von Komponenten, bei der es sich um trockene, magensaftresistent beschichtete Perlen oder Tabletten eines Protonenpumpenhemmers, gegebenenfalls gemischt mit trockenen Puffer- und/oder Geschmacksstoffen, handelt, und eine zweite Gruppe von Komponenten, bei der es sich um eine wäßrige Lösung eines temperaturempfindlichen Geliermittels handelt, enthält, wobei die Komponentengruppen beim Mischen und leichten Erwärmen ein pastenartiges Gel ergeben.

10. Pharmazeutische Zusammensetzung nach Anspruch 1, dadurch gekennzeichnet, daß es sich bei dem Protonen-

pumpenhemmer um Omeprazol handelt.

11. Pharmazeutische Zusammensetzung nach Anspruch 1, dadurch gekennzeichnet, daß es sich bei dem Protonenpumpenhemmer um Lansoprazol handelt.

12. Pharmazeutische Zusammensetzung nach Anspruch 1, dadurch gekennzeichnet, daß es sich bei dem Protonenpumpenhemmer um Pantoprazol handelt.

13. Pharmazeutische Zusammensetzung nach Anspruch 1, dadurch gekennzeichnet, daß es sich bei dem Protonenpumpenhemmer um Leminoprazol handelt.

14. Stabile pharmazeutische Zusammensetzung zur oralen Verabreichung an Tiere in Form eines Kits, enthaltend trockene, magensaftresistent beschichtete Perlen oder Tabletten eines Protonenpumpenhemmers und trockene Inhaltsstoffe, wobei die Komponenten bei Zugabe von Wasser oder einer wäßrigen Lösung ein pastenartiges Gel ergeben.

15. Stabile pharmazeutische Zusammensetzung zur oralen Verabreichung an Tiere in Form eines Kits, enthaltend eine erste Gruppe von Komponenten, bei der es sich um trockene, magensaftresistent beschichtete Perlen oder Tabletten eines Protonenpumpenhemmers, ein wasserlösliches organisches oder anorganisches Kalium-, Calcium-, Magnesium- oder Aluminiumsalz und gegebenenfalls Puffer- und/oder Geschmacksstoffe handelt, und eine zweite Gruppe von Komponenten, bei der es sich um trockene(s) Geliermittel handelt, wobei die Komponentengruppen beim Mischen in Gegenwart von Wasser ein pastenartiges Gel ergeben.

16. Stabile pharmazeutische Zusammensetzung zur oralen Verabreichung an Tiere in Form eines Kits, enthaltend eine erste Gruppe von Komponenten, bei der es sich um trockene, magensaftresistent beschichtete Perlen oder Tabletten eines Protonenpumpenhemmers, gegebenenfalls gemischt mit trockenen Puffer- und/oder Geschmacksstoffen, handelt, und eine zweite Gruppe von Komponenten, bei denen es sich temperaturempfindliche (s) Geliermittel handelt, wobei die Komponentengruppen beim Mischen in Gegenwart von Wasser und leichten Erwärmen ein pastenartiges Gel ergeben.

17. Pharmazeutische Zusammensetzung nach einem der Ansprüche 1, 14, 15 oder 16, dadurch gekennzeichnet, daß die gesamte Zusammensetzung oder Teile davon in einen Applikator in Form einer Spritze dispensiert wird.

18. Verfahren zur Herstellung einer pharmazeutischen Zusammensetzung nach Anspruch 1, dadurch gekennzeichnet, daß ein Protonenpumpenhemmer in Form von mit einem oder mehreren Überzügen - von denen einer magensaftresistent ist - beschichteten Perlen in ein pastenartiges Gel eingearbeitet wird.

19. Verwendung einer Zusammensetzung nach einem der Ansprüche 1, 14, 15 oder 16 zur Herstellung einer wirksamen Dosierungsform zur Behandlung von mit Magensäure verbundenen Erkrankungen bei Tieren.

Revendications

1. Composition pharmaceutique pour l'administration orale aux animaux, caractérisée en ce qu'elle comprend un inhibiteur de la pompe à protons sous forme de billes ou de comprimés qui sont enduits avec un ou plusieurs enrobages dont un est un enrobage à délitage entérique, caractérisée en ce que l'inhibiteur de la pompe à protons sous forme de billes ou de comprimés est incorporé dans un gel de type pâte.

2. Composition pharmaceutique selon la revendication 1, caractérisée en ce que les billes ou les comprimés sont enduits avec au moins deux enrobages dont l'un est une sous-couche et l'autre est un enrobage à délitage entérique.

3. Composition pharmaceutique selon l'une quelconque des revendications 1-2, caractérisée en ce que la composition pharmaceutique est destinée à l'administration orale aux chevaux.

4. Composition pharmaceutique selon l'une quelconque des revendications 1-2, caractérisée en ce que la composition comprend des composants qui sont des billes ou des comprimés secs à délitage entérique d'un inhibiteur de la pompe à protons, facultativement mélangés avec des constituants secs, composants qui, lors de l'addition d'eau

ou d'une solution aqueuse, donnent un gel de type pâte.

5. Composition pharmaceutique selon l'une quelconque des revendications 1-2, caractérisée en ce qu'elle comprend des composants qui sont des billes ou des comprimés secs à délitage entérique d'un inhibiteur de la pompe à protons, d'un ou de plusieurs agents gélifiants secs et facultativement de substances de tamponnement du pH et/ou de substances aromatisantes, composants qui, par addition d'eau, donnent un gel de type pâte.

6. Composition pharmaceutique selon l'une quelconque des revendications 1-2, caractérisée en ce que les billes ou les comprimés secs à délitage entérique d'un inhibiteur de la pompe à protons, d'un ou de plusieurs agents gélifiants secs et facultativement de substances de tamponnement du pH et/ou de substances aromatisantes, sont mélangés en un mélange sec avant l'addition d'eau ou d'une solution aqueuse.

7. Composition pharmaceutique selon la revendication 6, caractérisée en ce que le mélange est un mélange ordonné.

8. Composition pharmaceutique selon l'une quelconque des revendications 1-2, caractérisée en ce qu'elle comprend un premier groupe de composants qui sont des billes ou des comprimés secs à délitage entérique d'un inhibiteur de la pompe à protons, d'un sel organique ou inorganique soluble dans l'eau de potassium, de calcium, de magnésium ou d'aluminium et facultativement de substances de tamponnement du pH et/ou de substances aromatisantes, et un second groupe de composants qui sont une solution aqueuse d'un agent gélifiant, groupes de composants qui, mélangés, donnent un gel de type pâte.

9. Composition pharmaceutique selon l'une quelconque des revendications 1-2, caractérisée en ce qu'elle comprend un premier groupe de composants qui sont des billes ou des comprimés secs à délitage entérique d'un inhibiteur de la pompe à protons, facultativement mélangés à des substances sèches de tamponnement du pH et/ou des substances sèches aromatisantes, et un second groupe de composants qui sont une solution aqueuse d'un agent gélifiant sensible à la température, groupes de composants qui, mélangés et soumis à un léger chauffage, donnent un gel de type pâte.

10. Composition pharmaceutique selon la revendication 1, caractérisée en ce que l'inhibiteur de la pompe à protons est l'oméprazole.

11. Composition pharmaceutique selon la revendication 1, caractérisée en ce que l'inhibiteur de la pompe à protons est le lansoprazole.

12. Composition pharmaceutique selon la revendication 1, caractérisée en ce que l'inhibiteur de la pompe à protons est le pantoprazole.

13. Composition pharmaceutique selon la revendication 1, caractérisée en ce que l'inhibiteur de la pompe à protons est le léminoprazole.

14. Composition pharmaceutique stable pour l'administration orale aux animaux sous forme d'une trousse comprenant des billes ou des comprimés secs à délitage entérique d'un inhibiteur de la pompe à protons et de constituants secs, composants qui, lors de l'addition d'eau ou d'une solution aqueuse, donnent un gel de type pâte.

15. Composition pharmaceutique stable pour l'administration orale aux animaux sous forme d'une trousse comprenant un premier groupe de composants qui sont des billes ou des comprimés secs à délitage entérique d'un inhibiteur de la pompe à protons, d'un sel organique ou inorganique soluble dans l'eau de potassium, de calcium, de magnésium ou d'aluminium et facultativement de substances de tamponnement du pH et/ou des substances aromatisantes, et un second groupe de composants qui sont un ou plusieurs agents gélifiants secs, groupes de composants qui, mélangés en présence d'eau, donnent un gel de type pâte.

16. Composition pharmaceutique stable pour l'administration orale aux animaux sous forme d'une trousse comprenant un premier groupe de composants qui sont des billes ou des comprimés secs à délitage entérique d'un inhibiteur de la pompe à protons, facultativement mélangés à des substances sèches de tamponnement du pH et/ou des substances sèches aromatisantes, et un second groupe de composants qui sont un ou des agents gélifiants sensibles à la température, groupes de composants qui, mélangés en présence d'eau et soumis à un léger chauffage, donnent un gel de type pâte.

17. Composition pharmaceutique selon l'une quelconque des revendications 1, 14, 15 ou 16 caractérisée en ce que la composition dans son entièreté ou en partie est distribuée dans un applicateur sous forme de seringue.

18. Procédé pour la préparation d'une composition pharmaceutique selon la revendication 1, caractérisé par l'incorporation d'un inhibiteur de la pompe à protons sous forme de billes qui sont enduites avec un ou plusieurs enrobages dont un est un enrobage à délitage entérique dans un gel de type pâte.

19. Utilisation d'une composition selon l'une quelconque des revendications 1, 14, 15 ou 16 dans la préparation d'une forme active de dosage pour le traitement de maladies liées à l'acide gastrique chez des animaux.